

Societies and Academies.

PARIS.

Academy of Sciences, Sept. 8.—W. Vernadsky: The radium in aquatic organisms. The amounts of radium in different species of *Lemna* growing in lakes containing known amounts of radium have been determined. The concentration of radium in the living plant is 100-650 times that present in the water. The amounts of radium vary considerably with the species of *Lemna*, and this variation does not depend on the weight of the individual plant. The question as to what is the function of radium in the vital processes of *Lemna* still remains unanswered.—Auguste Lumière and Mme. R. H. Grange: The protective action of cholesterol against shock caused by flocculates. The facts cited prove that injections of cholesterol protect the animal (rabbit) against shocks of the anaphylactic type.—Joergen Rybner: Nomograms for transformations between rectangular and polar co-ordinates and for complex hyperbolic functions.—Cl. Chevalley: The theory of normic residues.—Radu Badesco: Logarithmic solutions of an integral equation.—Luca Teodoriu: A partial differential equation which occurs in the problem of average.—F. Charles and J. Flandrin: Contribution to the study of Cretaceous soils in the north of Anatolia (Asia Minor).—P. Fallot, A. Marin, and M. Blumenthal: The limestone chain of the Spanish Rif between Xauen and oued M'ter.—Th. Biéler-Chatelan: The polysynthetic quaternary glacier of Monti Simbruini (Central Apennines). The causes of its extension. The author concludes that in the Apennines, in spite of the altitudes being lower than the Alps, the quaternary glaciers could have reached dimensions comparable with those of Alpine glaciers, this being due to the heavy rainfall which has always characterised these ranges.—Jules Amar: The diaphragm origin of respiration.—Angelo Migliavacca: The lipochrome interstitial cells of the uterus.—Rémy Collin and Pierre Florentin: The growth of the nuclei in geometrical progression in Löwenthal's gland.—Mme. Y. Khouvine, E. Aubel, and L. Chevillard: The mechanism of the transformation of pyruvic acid into lactic acid in the liver.

GENEVA.

Society of Physics and Natural History, July 3.—H. Decker: System of organic combinations. The author has constructed curves permitting the prediction of the possible combinations; carbon and hydrogen are plotted on rectangular co-ordinates. For the more complex combinations, he combines several networks with a parallelogram mesh, such that all possible combinations find their place at the nodes of a parallelepiped mesh.—R. Cherbuliez and G. de Mandrot: The disaggregation of casein in acetamide. By heating casein in acetamide a true depolymerisation of the casein can be brought about without the chemical intervention of a foreign substance. This depolymerisation is accompanied by a profound modification of the original molecular edifice, but does not destroy the groupings which give on hydrolysis the amino-acids characteristic of the original proteid.—A. Georg: The determination of the constitution of the disaccharides by the method of methylation and its application to Fischer's isomaltose. By this method, the author deduces two possible constitutions for isomaltose; either that of a 6- α -glucoside (1.5)-glucose (1.5) or that of a 5-glucoside (1.5)-glucose (1.5). The first appears to be the more probable.—Eugene Pittard and Juan Comas: The condylo-diaphysary angle (angle of divergence)

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of the femurs of Bushmen, Hottentots, and Griquas. The authors find differences between the averages for the two sexes and others between the right and left sides. These differences are not the same in the Hottentots and the Griquas; granted a common origin, these differences may perhaps be attributed to the mode of life.

LENINGRAD.

Academy of Sciences (*Comptes rendus*, No. 1, 1930).—F. Loewinson-Lessing: A contribution to the petrography of Kamtchatka. Analyses of a series of specimens of lavas from Kamtchatka are given; most of the lavas are characterised by the presence of basic plagioclase phenocrysts, of basaltic hornblende, and by vitrophyric texture; lavas containing pyroxene are rare.—I. Vinogradov: The least primary root.—I. Medvedev: The problem of bios. The question as to whether yeast cells can develop in an artificial medium, without living elements in it, has been decided by various authors differently. This difference is due to neglecting the possible osmosis of physiologically active substances (bios) from the yeast cells themselves into the medium. Removing the substances so diffused by quick washing proved that they play a very important part in the development of yeast in an artificial medium.—N. Dneprovsky: The fundamental systems of the declination of stars.

Comptes rendus (No. 2, 1930).—A. Tchitchibabin: (1) Non-tanning substances in the extract from the rhizome of *Saxifraga (Bergenia) crassifolia*. (2) Arbutine. Both the rhizome and the leaves of *S. crassifolia* contain up to 10 per cent of the dry weight of the glucoside arbutine, which has so far been known only in the plants of the family Ericaceae and in *Pyrola*.—(2) Non-tanning substances of *Statice*: (1) Myricetine. A species of *Statice* from Turkestan was found to contain up to 1 per cent of the glucoside myricetine.—A. Tchitchibabin and N. A. Preobrazhenskii: The synthesis of the pylopic acids and the structure of the pylocarpine.—N. N. Jakovlev: (1) The genus *Petschoracrinus* and the transition from the dicyclic crinoids to the monocyclic ones. A series of specimens of *Petschoracrinus* exhibited a complete transition from the monocyclic to the dicyclic type, and the use of this character for the separation of the two sub-classes appears not to be justified.—(2) The primary pores of *Cystoblastus*. The madreporite of *C. kokerni* is kidney-shaped, perforated, and placed over the three interradial plates. On the concave side of the madreporite there is an orifice which must represent the gonopore.—E. Perepelkin: (1) The alteration of the rotation of the sun with the height. Prominences in different layers of the sun's atmosphere rotate with the same velocity.—(2) The separation of velocities of different gases in the prominences.—J. Medvedev: The theory of the simultaneous action of the external factors on the yield of crops. A method is offered for the calculation of the optimum combination of factors.

ROME.

Royal National Academy of the Lincei, May 4.—E. Paterno: The origins of stereochemistry. So long ago as 1869, Paternò proved the existence of two isomeric compounds of the formula C_2HCl_2 and attempted to explain their isomerism by means of spacial structural formulae.—F. Zambonini and Silvia Restaino: Double sulphates of rare earth and alkali metals (13). Sulphates of praseodymium and ammonium. In addition to the compound, $Pr_2(SO_4)_3 \cdot (NH_4)_2 SO_4 \cdot 8H_2O$, described by von Scheele in 1898,

these sulphates form the anhydrous double compound, $\text{Pr}_2(\text{SO}_4)_3, 5(\text{NH}_4)_2\text{SO}_4$, which is stable at 25° in contact with solutions containing from 63 to 56 per cent of ammonium sulphate and from 0.2 to 0.6 per cent of the praseodymium salt. The crystallographic characters of this double salt are described.—S. Franchi: The non-existence of the 'nappe de l'Embrunais' in Italian territory, indicated to the south of Mont Blanc in a geological map by Léon Moret.—F. Zambonini and A. Ferrari: The identity in crystalline structure of the cancrinite of Monte Somma with that of Mias. The recent and most satisfactory analyses of cancrinite indicate the formula, $3(\text{Na}_2, \text{Ca})\text{Al}_2\text{Si}_4\text{O}_8(\text{Na}_2, \text{Ca})\text{CO}_3$, with a slight excess of carbonates and a variable proportion of water.—Giulio Bemporad: The significance of the principle of the arithmetic mean.—R. Caccioppoli: A general theorem on the existence of unit elements in a functional transformation.—M. Brelot: The integrals of $(1)\Delta u = c(M)u(M)$ ($c \geq 0$) in the neighbourhood of a singular point 0 of $c(M)$.—Enrico Volterra: The deformation of an elastic medium due to a small displacement of an immersed rigid sphere.—B. Caldonazzo: Plane irrotational motions of perfect liquids in the presence of a movable disc.—A. Consiglio: A further exception to the Kutta-Joukowski theorem. The case of Joukowski's pisciform obstacle, with a single cuspidal point, is considered.—Luigia Pelosi: A new demonstration of a theorem of Painlevé-Levi-Civita on dynamic equations.—Anna Eredia: The coefficient of persistence of rainy days. The probability of the occurrence of rainy days, singly or in groups, was studied for Hamburg (1876-1900) by Grossmann, who, on the assumption that the various groupings were equally probable, derived formulæ for calculating the mean number of rainy days out of two, three, or more consecutive days. The values so calculated did not, however, agree with observations made over a considerable number of years, a result which was recently confirmed by Besson in the case of Paris, and by Domingo y Quilez in that of Saragossa. For Rome, the author finds that the coefficient of persistence of rain varies throughout the year, the maximum being in March and the minimum in July. The coefficient of probability of rain increases with increase in the preceding number of wet days, up to five in the case of Saragossa and to four in that of Rome.—E. Segrè: Intensity of the lines in the Raman effects of diatomic molecules. The quantum mechanical formula for the intensity of the Raman lines for the molecule O_2 is explained and is found to furnish results in good agreement with the experimental values.—B. Rossi: The action of the counter tube of Geiger and Müller.—G. Racah: An example of the quantistic treatment of an interference phenomenon.—A. Ostrogovich: Investigations on γ -triazines: synthesis of phenylaminohydroxytriazine. This compound may be synthesised by the interaction of benzamidine hydrochloride on guanylcarbamide acetate, and it seems likely that other aminohydroxytriazines may be similarly obtained.—A. Debenedetti: The determination of plagioclases by measurement of the angles of extinction in the zone normal to (010).—Giulio Cotronei and Aldo Spirito: Zoological constitution and grafting (3). New experiments on Anura and Urodeles.—M. Cornel: Studies on parathyreoprive syndrome (2). Preventive action of irradiated ergosterol in excessive doses.

SYDNEY.

Linnean Society of New South Wales, July 30.—J. R. Malloch: Notes on Australian Diptera (25). This paper contains (a) additional notes on Ortalidæ, Sapromyzidæ, Clusioididæ, and Neottiphilidæ, (b) a

revision of the Calliphorid subfamily Metopiinæ, and (c) some notes on Empididæ, with a key to the subfamilies. Thirty species are dealt with, fifteen of which are described as new. Three genera of Metopiinæ are also described as new. Keys are given for separation of the genera of Metopiinæ and species of *Tapeigaster*, *Miltogramma*, and *Protomiltogramma*.—Rev. H. M. R. Rupp: Notes on the autumn orchids of the South Maitland coalfields. Notes on nine species of *Pterostylis* and *Acianthus exsertus*. One species of *Pterostylis* is described as new.—A. A. Lawson: The origin of endemism in the angiosperm flora of Australia. This paper gives the author's observations on the sterility of various members of the Proteaceæ and Myrtaceæ. The percentage sterility of the pollen is very high in some types, amounting to as much as 95 per cent. The pollen sterility is generally associated with low seed-output. The view is expressed that the sterility of the pollen is the result of natural hybridisation.

Official Publications Received.

BRITISH.

Department of Scientific and Industrial Research. Building Science Abstracts. Vol. 3 (New Series), No. 8-9, August-September 1930. Abstracts Nos. 1496-1853. (London: H.M. Stationery Office.) 1s. 6d. net.

Indian Central Cotton Committee: Technological Laboratory. Technological Bulletin, Series B, No. 7: The Weight per Inch of Fibres of Different Lengths, and the Numbers of Fibres of Different Lengths per Seed, for each of the Standard Indian Cottons. By R. L. N. Iyengar and Dr. A. J. Turner. Pp. ii+24. 8 annas. Technological Bulletin, Series B, No. 3: The Foundations of Yarn-Strength and Yarn-Extension. Part 3: The Clinging Power of Cotton. By Haritas Navkal and Dr. A. James Turner. Pp. ii+13. 8 annas. (Bombay.)

University of London: University Extension and Tutorial Classes Council. University Extension Lecture Courses and University Tutorial Classes, Session 1930-31. Pp. 45. (London.)

Commonwealth of Australia: Council for Scientific and Industrial Research. Bulletin No. 44: Investigations on "Spotted Wilt" of Tomatoes. By Geoffrey Samuel, J. G. Bald and H. A. Pittman. Pp. 64. (Melbourne: H. J. Green.)

Transactions of the Optical Society. Vol. 31, No. 3, 1929-30. Pp. iv+113-168. (London.) 10s.

Western Australia. Annual Progress Report of the Geological Survey for the Year 1929. Pp. 38+45 plates. (Perth: Fred. Wm. Simpson.)

Ceylon. Part 4: Education, Science and Art (D). Administration Report of the Acting Director of Agriculture for 1929. By Dr. W. Small. Pp. D28. (Colombo: Government Record Office.) 55 cents.

Indian Journal of Physics, Vol. 5, Part 2, and Proceedings of the Indian Association for the Cultivation of Science, Vol. 14, Part 2. Conducted by Sir C. V. Raman. Pp. 113-236. (Calcutta.) 2.4 rupees; 3s.

South Australia. Department of Mines: Geological Survey of South Australia. Bulletin No. 14: Geological Structure and other Factors in relation to Underground Water Supply in portions of South Australia. By R. Lockhart Jack. Pp. 48+4 plates. (Adelaide: Harrison Weir.)

FOREIGN.

University of Washington Publications in Anthropology. Vol. 3, No. 2: Mythology of Southern Puget Sound. By Arthur G. Ballard. Pp. 31-150. 1 dollar. Vol. 4, No. 1: The Indians of Puget Sound. By Hermann Haerberlin and Erna Gunther. Pp. 84+2 plates. 1 dollar. (Seattle, Wash.: University of Washington Press.)

U.S. Department of Commerce: Coast and Geodetic Survey. Special Publication No. 168: Progress of Work in Terrestrial Magnetism of the U.S. Coast and Geodetic Survey, July 1, 1927, to June 30, 1928. By Daniel L. Hazard. Pp. 6. (Washington, D.C.: Government Printing Office.) 5 cents.

Proceedings of the American Academy of Arts and Sciences. Vol. 64, No. 9: The Joule-Thomson Effect in Air. Second Paper. By J. E. Roebuck. Pp. 287-334. 90 cents. Vol. 64, No. 10: Diffuse Matter in Interstellar Space. By J. S. Plaskett. Pp. 335-346. 45 cents. Vol. 64, No. 11: A Photographic Investigation of Twenty-five Southern Cepheid Variable Stars. By Harlow Shapley. Pp. 347-464. 1.70 dollars. (Boston, Mass.)

Koninklijk Magnetisch en Meteorologisch Observatorium te Batavia. Jaarverslag 1929. Pp. 25. (Wetvevreden: Landsdrukkerij.)

Journal of the Faculty of Agriculture, Hokkaido Imperial University, Sapporo, Japan. Vol. 27, Part 1: Vergleichende Untersuchungen über die Qualitäten, insbesondere die Elastizität und Festigkeit der Tannen- und Fichtenhölzer Hokkaidos. Von Masayuki Ohsawa. Pp. 225. Vol. 28, Part 2: Ein Beitrag zur Kenntnis der Gattung *Rhizopus*, II. Von Yohjiho Yamamoto. Pp. 103-327. (Tokyo: Maruzen Co., Ltd.)

Monographs of the Rockefeller Institute for Medical Research. No. 23: The Treatment of Human Trypanosomiasis with Trypansamide; a Critical Review. By Dr. Louise Pearce. Pp. 339. (New York City.) 2 dollars.

CATALOGUE.

Supplément au Catalogue de Photographies Documentaires. Quatrième édition. Pp. 144+8 planches. (Paris: Jacques Boyer.)